

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Kevin R. Driscoll	Examiner:	Fikremariam Yalew
Serial No.:	10/750,529	Group Art Unit:	2136
Filed:	December 31, 2003	Docket No.:	H0005071.35998
Title:	DATA AUTHENTICATION AND TAMPER DETECTION		

PRE-APPEAL BRIEF REQUEST FOR REVIEW

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In response to the Advisory Action mailed August 10, 2007, Applicant requests review of the final rejection of claims in the above-identified Application. No amendments are submitted with this Request, which is filed with a Notice of Appeal for the reasons stated below.

§103 Rejection of the Claims

Claims 1-4, 9-19, 24-27, 32-35 were rejected under 35 USC § 103 as being unpatentable over Johnson, P.K., et al. (WO 00/18162) in view of Imai et al. (U.S. Patent No. 6,910,130). Applicant respectfully traverses the rejection, because neither Johnson nor Imai, alone or in combination, disclose or suggest all of the claim limitations. Applicant submits that the Office Action has not established a *prima facie* case of obvious vis-à-vis claims 1-4, 9-19, 24-27, 32-35. In order for the Examiner to establish a *prima facie* case of obviousness, the prior art references` must teach or suggest all the claim limitations.

The cited references lack at least the use of an ephemeral value for data authentication. For example, the cryptographic keys used in data authentication are equal to various ephemeral values. As set forth in the detailed description, an ephemeral value “may be a number of different values, which are considered unpredictable relative to an adversary who may attempt to compromise the response device . . .” Application at ¶0021.

Claims 1-4, 13-19 and 24-27

Among the differences, claims 1 and 24 recite “generating a digital signature of the data with a cryptographic key having a value that is equal to the ephemeral value.” Among the differences, claim 13 recites “a signature logic to retrieve at least part of the data from the

storage medium and to generate a cryptographic hash across the at least part of the data with a cryptographic key having a value that is equal to the ephemeral value.”

The Office indicated that “Johnson does not explicitly teach a cryptographic key having a value that is equal to the ephemeral value”, but that Imai did disclose this limitation (citing Imai at Fig. 7 step 74 and col. 3, line 63 – col. 4, line 4). Office Action at page 3 and Advisory Action at page 2. Applicant respectfully traverses this assertion. Imai relates to a digital signature system that includes a center computer and two terminal devices (See Imai at column 1, line 61 – column 2, line 8). As described in this section, the center computer generates and outputs a signing-key to a first terminal device and a verification-key to a second terminal device. The first terminal device “generates a digital signature for a digital data to be signed using the signing-key . . .” Imai at column 2, lines 1-2. The second terminal device receives the digital signature and “verifies the validity of the digital signature using the verification-key . . .” Imai at column 2, lines 6-7.

The Office seems to equate the response device and the challenging device as the first terminal device and the second terminal device, respectively, in Imai. In particular, in Imai, the first terminal device generates a digital signature that is verified by the second terminal device. (See discussion above). Thus, the Office seems to assert that the “signing-key” (used by the response device) is the cryptographic key that equals an ephemeral value (as claimed). The signing-key does not equal an ephemeral value. As set forth in the detailed description, an ephemeral value “may be a number of different values, which are considered unpredictable relative to an adversary who may attempt to compromise the response device . . .” Application at ¶0021. The signing-key in Imai (“si”) equals a second multivariate function (“ $F(x, y_1, \dots, y_w, z)$ ”). See Imai at column 8, lines 3-5. Thus, the signing-key does not equal an ephemeral value (as claimed).

Moreover, claims 1 and 24 recite “receiving an ephemeral value from a challenging device.” (emphasis added). As noted above, the signing-key is generated and outputted to the response device by center computer (not by the challenging device). In response to these remarks in the response to the Final Office Action, in the Advisory Action, the Office then references Johnson at col. 6, lines 17-24 and Figs. 2,3 (i.e., challenger (step 122)) for Johnson and Imai disclosing “receiving an ephemeral value from the challenging device.” Advisory

Action at page 2. Applicant assumes that the Office meant Johnson at page 6, lines 17-24 and Figs. 2,3 (i.e., challenger (step 122)). Applicant respectfully traverses this combination.

In particular, combining Johnson with Imai by altering Imai to include receiving the ephemeral value from the challenging device (instead of the center computer) would destroy the stated purpose of Imai. In particular, (as discussed above) in the system in Imai, a center computer (not the challenging device) generates and outputs the signing-key.

A center computer, according to the present invention, comprises first generating means for generating a signing-key for a signer (which is to be inputted in the first terminal device), second generating means for generating a verification-key for a verifier (which is to be inputted in the second terminal device), a first output device outputting the signing-key generated by the first generating means and a second output device outputting the verification-key generated by the second generating means.

Imai at column 2, lines 57-65.

Thus, the purpose of Imai is to have the encryption keys (both the signing-key and the verification-key) be distributed by a central computer. If the signing-key were generated and output by the challenging device, the system in Imai would not work as intended. As a result, there is no suggestion or motivation to make the proposed modification.

Thus, a *prima facie* case of obviousness has not been established for claims 1, 13 and 24. Applicants respectfully submit that the rejection of claims 1, 13 and 24 has been overcome and that these claims are in condition for allowance. Because claims 2-4, 14-19 and 25-27 depend from and further define claims 1, 13 and 24, respectively, Applicant respectfully submits that the rejection of claims 2-4, 14-19 and 25-27 under 35 USC § 103 has been overcome.

§102 Rejection of the Claims

Claims 5-8, 20-23 and 28-31 were rejected under 35 U.S.C. § 102(b) for anticipation by Johnson. Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. *In re Dillon* 919 F.2d 688, 16 USPQ2d 1897, 1908 (Fed. Cir. 1990) (*en banc*), cert. denied, 500 U.S. 904 (1991). Applicants respectfully disagree with this rejection because Johnson does not teach all of the claim limitations.

Claims 5-8 and 28-31

Among the differences, claims 5 and 28 recite “generating a hash across the data using the ephemeral value as a key of the hash.” The Office indicated that the generating of the digital signature is disclosed by Johnson at page 6, lines 25-33 and Figs. 2-3. The Office is equating the ephemeral value as recited in claims 5 and 28 with the nonce 204 illustrated in Fig. 2. The recited section of Johnson does not generate a digital signature with a cryptographic key having a value with to the value of the nonce 204. Rather, this section of Johnson relates to having the nonce 204 being concatenated to the embedded software. This concatenation forms a pre-image 208B, which is then hashed.

In one embodiment, nonce 204 and the embedded software are catenated by catenator 206B to form a pre-image 208B for processing by hash function 210B. Johnson at page 6, lines 28-29.

In other words, the nonce 204 is part of the data being hashed. Johnson does not disclose that the value of the nonce 204 is used as the cryptographic key.

Because Johnson does not disclose all of the claim limitations, Applicant respectfully submits that the rejection of claims 5 and 28 under 35 USC § 102 has been overcome. Because claims 6-8 and 29-31 depend from and further define claims 5 and 28, respectively, Applicant respectfully submits that the rejection of claims 6-8 and 29-31 under 35 USC § 102 has been overcome.

Claims 20-23

Among the differences, claim 20 recites “an input/output (I/O) logic to output a request for authentication to a response device, wherein the request includes the ephemeral value, the I/O logic to receive a first digital signature from the response device in response to the request for authentication.” Applicant respectfully submits that Johnson does not disclose the outputting of a request that includes an ephemeral value to a response device (see discussion of Johnson above).

Because Johnson does not disclose all of the claim limitations, Applicant respectfully submits that the rejection of claim 20 under 35 USC § 102 has been overcome. Because claims

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.116 – EXPEDITED PROCEDURE

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21-23 depend from and further define claim 20, Applicant respectfully submits that the rejection of claims 21-23 under 35 USC § 102 has been overcome.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 371-2103 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 4th day of September 2007.

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